

Revolutionizing Medical Devices with AE's Power Solutions for Pulsed Field Ablation

INDUSTRY**Electrosurgery****SOLUTION****UltraVolt High Power C Series
SL Power NGB Family****APPLICATION****Pulsed Field
Ablation****CHALLENGE**

A leading medical device company embarked on a mission to design a cutting-edge Pulsed Field Ablation Marx Generator. A Marx Generator is a type of high-voltage pulse generator that uses a series of capacitors charged in parallel and then discharged in series to produce a high voltage output.

The customer required a robust single output AC-DC power supply and a high voltage DC-DC converter for capacitor charging applications. They sought a partner with a diverse portfolio of medically certified power supplies and exceptional technical support.

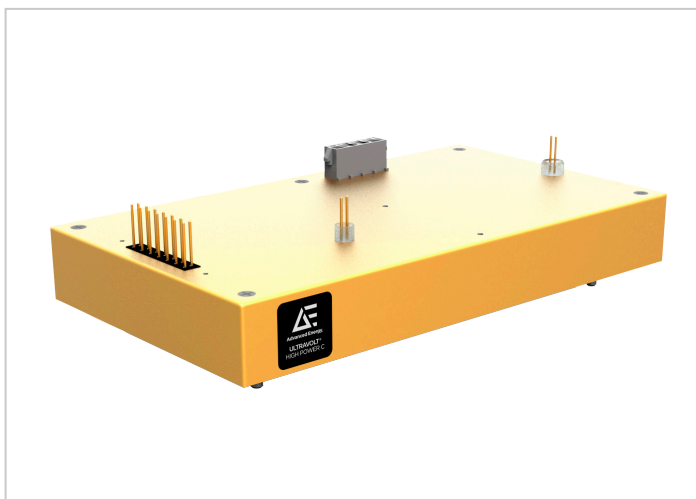
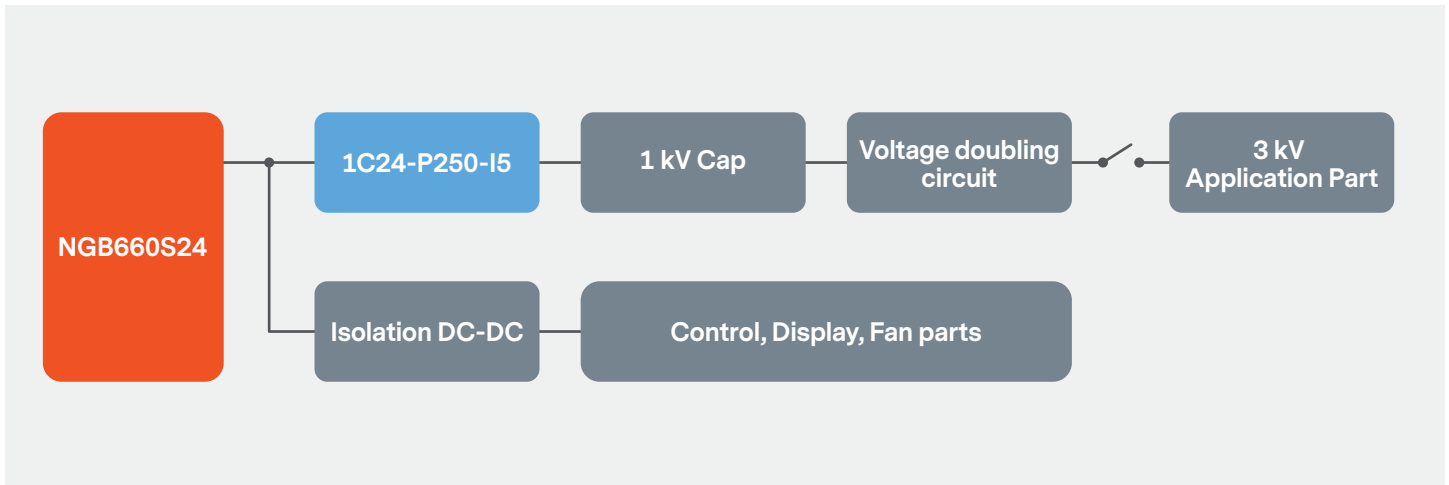


Fig. 1 UltraVolt® High Power C Series



Fig. 2 SL Power NGB Family



The main components and connections used in the Pulsed Field Ablation Marx Generator system included:

1. **NGB660S24:** This is the primary power supply unit that provides the necessary voltage for the system.
2. **1C24-P250-I5:** This component is a high voltage DC-DC converter used for capacitor charging applications.
3. **1 kV cap:** A capacitor that stores electrical energy and releases it in high-voltage pulses.
4. **Voltage doubling circuit:** This circuit increases the voltage output by doubling the input voltage.
5. **3 kV application part:** The section of the system where the high-voltage pulses are applied for the intended medical procedure.
6. **Isolation DC-DC:** A DC-DC converter that provides electrical isolation between different parts of the system to ensure safety and reliability.
7. **Control, Display, Fan parts:** These components manage the system's operations, display relevant information, and ensure proper cooling.

Beside the interconnection of all components, the diagram highlights the flow from the NGB660S24 through various stages including voltage regulation and isolation before reaching application-specific parts and control/display units.

Advanced Energy (AE) stepped up to the challenge, offering unparalleled advantages:

- World-class service and consulting from technical experts.
- Fast sample delivery leads to a rapid time-to-market and the lowest total cost of ownership.

RESULT

By choosing AE's SL Power NGB Family and UltraVolt® High Power C series, the medical device company met their stringent requirements for highly reliable AC-DC and DC-DC power supplies, boasting high power density and best-in-class quality. The exceptional technical support and fast sample delivery enabled the company to accelerate their development cycle, bringing their innovative Pulsed Field Ablation Marx Generator to market faster than anticipated.

CONCLUSION

AE power solutions empower customer innovation in complex electrosurgery applications. The SL Power NGB Family and UltraVolt® High Power C series are meticulously designed to meet the demanding specifications of novel pulsed field ablation applications, utilizing state-of-the-art power conversion topology.

With a broad portfolio of highly reliable medical solutions, AE is well-equipped to meet all high and low voltage application requirements for electrosurgery devices. The AE teams deep medical applications knowledge and responsive service and support across the globe foster collaborative partnerships to power the future of electrosurgery. Initial sample power supplies were provided to the customer within weeks of contact with Advanced Energy's technical experts.

COMING SOON

Advanced Energy recently launched the NCF series of off-the-shelf CF rated low-mid open-frame power supplies as part of their comprehensive medical portfolio.

Additionally, AE's engineering team are developing the next generation of power platforms for Pulsed Field Ablation, extending their capabilities in precision power. Soon, Advanced Energy will offer a fully configurable standard off-the-shelf Pulsed Field Ablation power platform, providing faster time-to-market at the lowest total cost of ownership.



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